

**PCT**WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau

## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>6</sup> : <b>G09F</b>	<b>A2</b>	(11) International Publication Number: <b>WO 99/40557</b> (43) International Publication Date: 12 August 1999 (12.08.99)
(21) International Application Number: PCT/US99/02759 (22) International Filing Date: 4 February 1999 (04.02.99) (30) Priority Data: 09/018,414                      4 February 1998 (04.02.98)                      US (71)(72) Applicant and Inventor: KIEFFER, Ron [US/US]; 7101 Roosevelt Way N.E. #107, Seattle, WA 98115 (US).	(81) Designated States: ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  Published <i>Without international search report and to be republished upon receipt of that report.</i>	
(54) Title: COMBINATION BENCH, NIGHT LIGHT AND DISPLAY BOARD  (57) Abstract  <p>A bench with an illuminated display board on both sides of the upright vertical part of the bench used as a backrest and support for those sitting on the bench. The display board will be brighter than regular illuminated signs and the photography, graphics as well as the lettering will be clearer and easier to see from a distance. The illuminated display board will be powered by a battery that can be recharged. The bench will have an antenna in it that can pick up radio signals that will indicate to a semiconductor receiver and memory device to change the image and or printed information on the display board. The radio signal can also cause the semiconductor receiver and memory device to give out an audible message. The semiconductor receiver and memory device will have a processor to change analog signals to a digital signal and back again. There will also be a device to regulate the brightness of the illuminated display board. As an option there may be a light sensor to activate the flat thin electroluminescent lamps. There will also be an extension sign that can be put on top of the vertical back of the bench or be used independently of the bench as its own sign or billboard.</p>		

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakhstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

## **COMBINATION BENCH, NIGHT LIGHT AND DISPLAY BOARD**

### **Background—Field of Invention**

A bench with information to be displayed on it.

### **Background—Description of Prior Art**

Benches may have been invented before fire and the wheel. Over the years many different and decorative versions of benches have evolved. Over a hundred years ago information started to appear on the back of benches, usually in the form of advertising. Since then the backs of benches have been illuminated by neon or argon lighting for the purpose of being employed outdoors.

### **OBJECTS OF THE INVENTION**

To give off a bright light to assist bus passengers in finding the bus stop at night.

To having a clearer image on the lighted display board to assist people in seeing the information on the display board from a distance.

To give people a comfortable place to sit while waiting for the bus or just to rest.

To give people information on changing conditions such as when the bus is coming or if the bus is late or if there is an accident or traffic jam ahead. This can be accomplished both visibly and audibly.

To give people information from advertisers.

### **SUMMARY OF THE INVENTION**

A bench made of a formed or molded material, having a seating platform supported by end supports and a support in the middle. The seat back assembly will have a transparent panel on both the front and the back sides that can be lifted to gain access to

the flat thin electroluminescent lamp behind each panel. There will be a device to regulate the brightness of the flat thin electroluminescent lamp. As an option there may be a light sensor to activate the flat thin electroluminescent lamps. Each flat thin electroluminescent lamp will have a panel behind it to give it support. Between these two panels will be a long slender battery that can be removed weekly for recharging. Between the battery and the flat thin electroluminescent lamp will be transformers to enable a lower voltage battery to be used.

Embedded within the formed or molded bench will be an antenna connected to a semiconductor receiver and memory device that will include a digital signal processor. The incoming signal will cause the semiconductor receiver and memory device to change the display of letters, photographs and or graphics embedded within or placed on top of the flat thin electroluminescent lamp. The incoming signal can also impose messages on top of the display being displayed. Occupying niches within the supporting ends of the formed or molded bench will be speakers that will provide audible messages from the semiconductor receiver and memory device.

In certain situations there will be an upward extension of the seat back assembly. This will consist of a rectangular panel resting on top of the seat back assembly which will be structurally supported by two bars extending from the seat back assembly up into the panel. Within or adjacent to these bars will be wires to provide electricity and input from the semiconductor receiver and memory device in the bench up into the panel. One or two sides of this panel will have a flat thin electroluminescent lamp resting upon it which in turn will be covered by a flat transparent panel. In certain situations this panel can be taken off the bench and stand separate and independent from the bench as its own sign or billboard. In this case the panel may be on a supporting structure or attached to a wall. It will have its own antenna and semiconductor receiver and memory device. The semiconductor receiver and memory device will have a digital signal processor with or without the facility to simulate the human voice. If the semiconductor receiver and memory device can simulate the human voice there will be speakers on this extension sign or billboard. Since the extension sign or billboard will be separate from the bench it will have its own source of power from local electricity lines. This extension sign whether resting separately on top of the bench or standing independently will have a strip of edging material surrounding its edges.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

FIG. 1 is an elevated perspective view of the combination bench, night light and display board.

FIG 2 is a cross sectional view of the invention.

FIG 3 is a diagram of the semiconductor receiver and memory device of the invention.

### **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

Referring now to FIGS. 1 and 2, a combination bench, night light and display board is indicated by the reference numeral 10. The main embodiment of the bench is indicated as 12, a single molded or formed piece consisting of a seating platform 14, legs 16, end pieces 18 and a housing 20 which holds the two panels 22 making up the back of the bench 10. These two panels 22 will be attached to the housing 20 by hinges 24. The two panels 22 will each support a flat thin electroluminescent lamp 26. Each flat thin electroluminescent lamp 26 will be covered by a flat transparent panel 28. The power source of the flat thin electroluminescent lamp 26 will be a long thin battery 30 that can be removed for recharging. The battery 30 will be connected to two electrodes 32 on each end of the flat thin electroluminescent lamps 26. On the connection from the battery 30 to the flat thin electroluminescent lamps 26 will be voltage transformers 34 and a regulator 36 to control the brightness of the flat thin electroluminescent lamps 26. As an option there may be a light sensor 52 to activate the flat thin electroluminescent lamps.

Embedded within the main molded or formed piece 12 will be an antenna 38. The antenna 38 will be connected to a semiconductor receiver and memory device 40 which in turn will be connected to each flat thin electroluminescent lamp 26. Each semiconductor receiver and memory device 40 will include a digital signal processor 42 and a device to simulate the human voice 44.

The main molded or formed piece of the bench 10 will have a hole at each end 18 that will contain a speaker 46. The main molded or formed piece 12 of the bench 10 will also have holes at the bottom that will contain bolts 48 to anchor it to a solid base.

The bench can have an extension 50 that can be placed on top of the housing 20 or exist independently of the bench 10. This extension 50 will consist of a panel 22 supporting a flat thin electroluminescent lamp 26 on each side which will be covered by a flat transparent panel 28. If the extension 50 exists independently of the bench 10 it will have its own antenna 38, semiconductor receiver and memory device 40 as well as its own power source.

What is claimed is:

1. A bench comprising a main molded or formed piece having a seating platform including supports on each side,  
said supports holding two panels,  
said panels each holding a flat thin electroluminescent lamp,  
said flat thin electroluminescent lamp embedded with photographs, letter and graphics to make up an display board.  
said flat thin electroluminescent lamp to be covered by a transparent panel.  
said flat thin electroluminescent lamp is to be powered by a removable and rechargeable power supply. An antenna that is capable of receiving radio signals embedded within the main molded or formed piece of the bench will be connected to a semiconductor receiver and memory device.  
said semiconductor receiver and memory device being able to receive through the antenna, radio signals coming from buses, fire engines, ambulances, cars or from elsewhere thus making the semi-conductor receiver and memory device able to change displays on the display board or to impose new displays over existing displays to inform viewers of changing conditions or events. An additional flat panel containing another pair of flat thin electroluminescent lamps with embedded display board that can be attached to the bench or used independently of the bench. If independent of the bench, this extension will have its own power supply, its own antenna, and its own semi conductor receiver and memory device.
2. a bench as recited in claim 1 having within the semiconductor receiver and memory device a digital signal processor.
3. a bench as recited in claim 1 having within the semiconductor receiver and memory device an additional device to simulate human speech.
4. a bench as recited in claim 1 having embedded within the main molded piece a pair of speakers.
5. a bench as recited in claim 1 having a dimmer to regulate the brightness of the flat thin electroluminescent lamps.
6. a bench as recited in claim 1 having bolts to attach the bench to a base.
7. a bench as recited in claim 1 having rechargeable batteries as a power source.
8. a bench as recited in claim 7 having rechargeable batteries containing transformers between said batteries and the flat thin electroluminescent lamps to enable lower voltage batteries to be used
9. A bench as recited in claim 1 having a light sensor.

Fig. 1

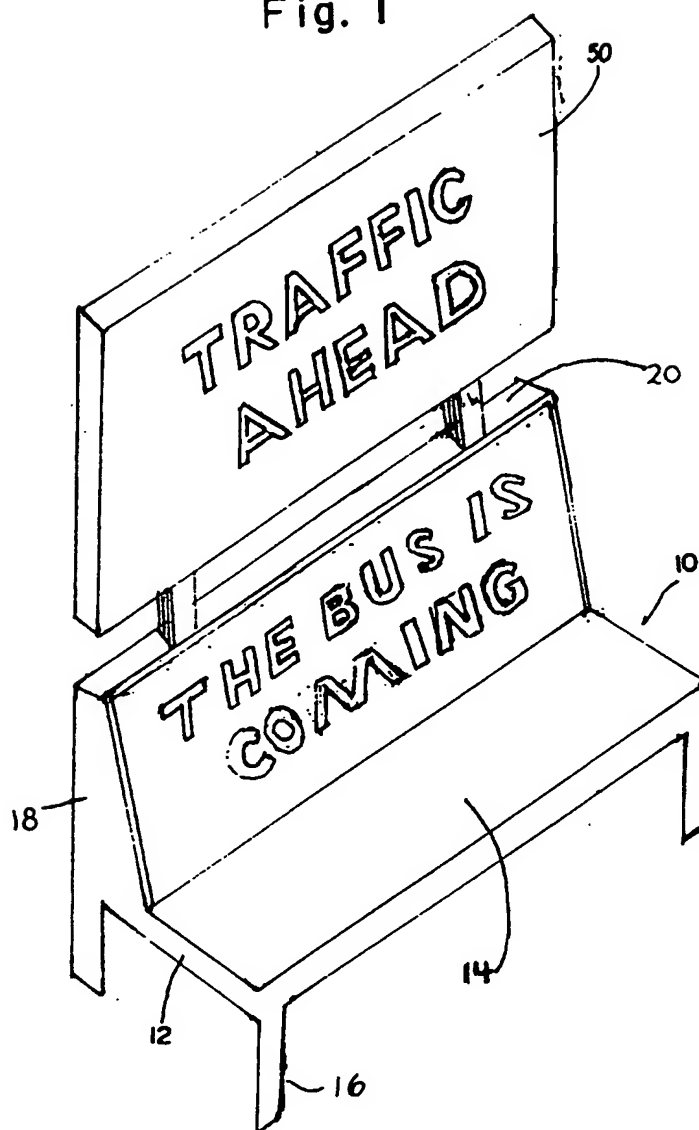


Fig. 2

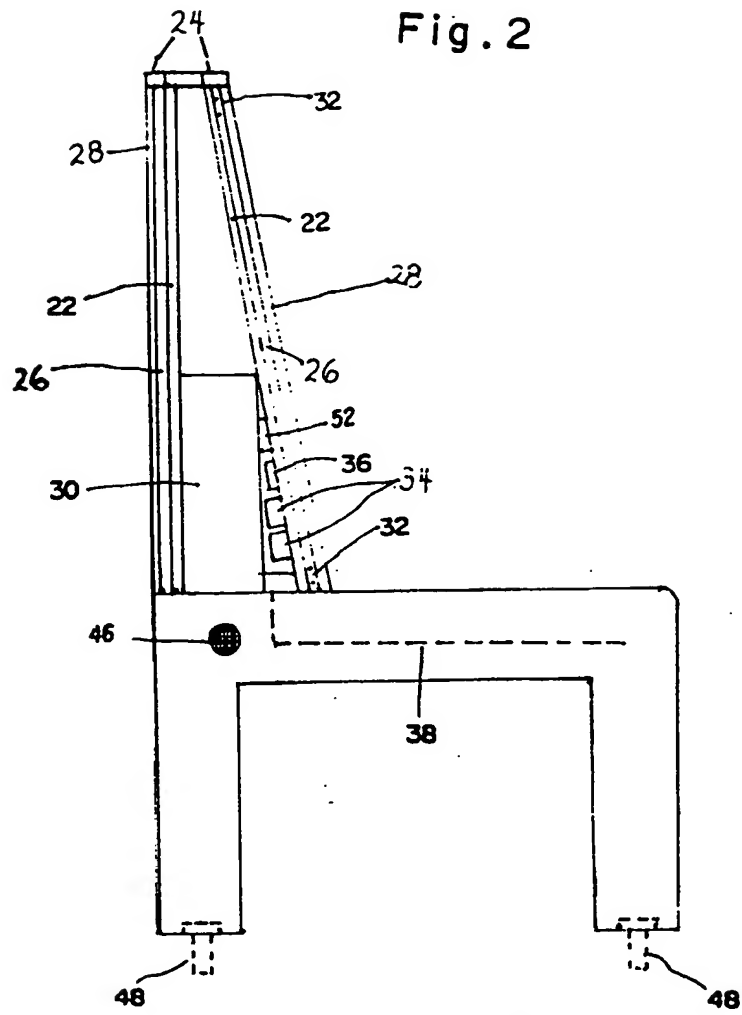


Fig. 3

